

1. A non-woven soft tissue implant comprising a porous biocompatible film having a plurality of cells and a thickness of less than about 0.015 inches.

2. The non-woven soft tissue implant of claim 1, wherein the porous biocompatible
5 film comprises a non-absorbable polymer or copolymer.

3. The non-woven soft tissue implant of claim 2, wherein the non-absorbable
polymer or copolymer comprises polypropylene, polyethylene terephthalate,
polytetrafluoroethylene, polyaryletherketone, nylon, fluorinated ethylene propylene,
10 polybutester, or silicone.

4. The non-woven soft tissue implant of claim 1, wherein the porous biocompatible
film comprises an absorbable polymer or copolymer.

15 5. The non-woven soft tissue implant of claim 4, wherein the absorbable polymer or
copolymer comprises polyglycolic acid (PGA), polylactic acid (PLA), polycaprolactone, or
polyhydroxyalkanoate.

6. The non-woven soft tissue implant of claim 1, wherein the porous biocompatible
20 film comprises a biological material.

7. The non-woven soft tissue implant of claim 6, wherein the biological material is
collagen.

25 8. The non-woven soft tissue implant of claim 1, wherein the implant has a surface
area ratio of about 1.00.

9. The non-woven soft tissue implant of claim 1, wherein one or more of the cells in
the plurality of cells has a diameter, measured along the longest axis of the cell, of about 10 μ
30 to about 10,000 μ .

10. The non-woven soft tissue implant of claim 9, wherein one or more of the cells in the plurality of cells has a diameter, measured along the longest axis of the cell, of about 1,500 μ to about 5,000 μ .

5 11. The non-woven soft tissue implant of claim 9, wherein one or more of the cells in the plurality of cells has a diameter, measured along the longest axis of the cell, of about 50 μ to about 100 μ .

10 12. The non-woven soft tissue implant of claim 1, wherein one or more of the cells of the plurality are essentially square, rectangular, or diamond-shaped.

13. The non-woven soft tissue implant of claim 1, wherein one or more of the cells of the plurality are essentially round or oval-shaped.

15 14. The non-woven soft tissue implant of claim 1, wherein one or more of the cells of the plurality have essentially the same shape as the cell shown in Mesh2, Mesh2C, Mesh3, or Mesh4.

20 15. The non-woven soft tissue implant of claim 1, wherein the thickness of the porous biocompatible film is less than about 0.014 inches, less than about 0.013 inches, less than about 0.012 inches, less than about 0.011 inches, less than about 0.010 inches, less than about 0.009 inches, less than about 0.008 inches, less than about 0.007 inches, less than about 0.006 inches, less than about 0.005 inches, less than about 0.004 inches, less than about 0.003 inches, less than about 0.002 inches, or is about 0.001 inch.

25 16. The non-woven soft tissue implant of claim 1, wherein the porous biocompatible film has autraumatic edges.

30 17. The non-woven soft tissue implant of claim 1, wherein the porous biocompatible film is at least about 2.5 cm long along a first side and no more than about 45.0 cm long along a second side.

18. The non-woven soft tissue implant of claim 1, wherein the implant is flexible along two axes.

5 19. The non-woven soft tissue implant of claim 18, wherein the plurality of cells comprises a cell pattern containing a sinusoidal element.

20. The non-woven soft tissue implant of claim 18, wherein each of the cells in the plurality of cells has a plurality of undulating elements in the form of a repeating pattern.

10 21. The non-woven soft tissue implant of claim 20, wherein the undulating elements are in phase.

22. The non-woven soft tissue implant of claim 1, wherein the cells in the plurality of cells have a diameter greater than 50 μ and the non-woven soft tissue implant has force
15 displacement characteristics that do not restrict tissue movement.

23. The non-woven soft tissue implant of claim 22, wherein the implant can be distended by 25% or more at 16 N/cm.

20 24. The non-woven soft tissue implant of claim 23, wherein the pattern of the plurality of cells imparts force displacement characteristics that approximates those of the structure being repaired.

25 25. The non-woven soft tissue implant of claim 1, wherein the implant has a surface area ratio less than 1.5.

26. A non-woven soft tissue implant comprising a first porous biocompatible film having a plurality of cells and a second porous biocompatible film having a plurality of cells, the thickness of the implant being less than about 0.015 inches.

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27. The non-woven soft tissue implant of claim 26, wherein the first film and the second film consist of the same material or materials.

5 28. The non-woven soft tissue implant of claim 26, wherein the first film and the second film consist of different materials.

10 29. The non-woven soft tissue implant of claim 28, wherein the first film or the second film includes a bioresorbable material and the rate at which the first film is resorbed within a body is different from the rate at which the second film is resorbed within the body.

30. The non-woven soft tissue implant of claim 26, wherein the first film and the second film are of substantially the same size and a surface of the first film adheres to a surface of the second film.

15 31. The non-woven soft tissue implant of claim 26, wherein the porous biocompatible film comprises a non-absorbable polymer or copolymer.

20 32. The non-woven soft tissue implant of claim 31, wherein the non-absorbable polymer or copolymer comprises polypropylene, polyethylene terephthalate, polytetrafluoroethylene, polyaryletherketone, nylon, fluorinated ethylene propylene, polybutester, silicone, polyethylene, or a copolymer of polyethylene and polypropylene.

25 33. The non-woven soft tissue implant of claim 26, wherein the porous biocompatible film comprises an absorbable polymer or copolymer.

34. The non-woven soft tissue implant of claim 33, wherein the absorbable polymer or copolymer is PGA, PLA, polycaprolactone, or polyhydroxyalkanoate.

30 35. The non-woven soft tissue implant of claim 26, wherein the porous biocompatible film comprises a biological material.

36. The non-woven soft tissue implant of claim 35, wherein the biological material is collagen.

37. The non-woven soft tissue implant of claim 26, wherein the surface area ratio of
5 the first film or the second film is about 1.00.

38. The non-woven soft tissue implant of claim 26, wherein the first film or the
second film comprises a cell having a diameter, measured along the longest axis of the cell,
of about 10 μ to about 10,000 μ ; of about 1,500 μ to about 5,000 μ ; or of about 50 μ to about
10 100 μ .

39. The non-woven soft tissue implant of claim 26, wherein the first film or the
second film comprises a cell that is essentially square, rectangular, or diamond-shaped.

15 40. The non-woven soft tissue implant of claim 26, wherein the first film or the
second film comprises a cell that is essentially round or oval-shaped.

41. The non-woven soft tissue implant of claim 26, wherein the first film or the
second film comprises a cell having essentially the same shape as the cells of Mesh2,
20 Mesh2A, Mesh3, or Mesh4.

42. The non-woven soft tissue implant of claim 26, wherein the thickness of the
implant is less than about 0.014 inches, less than about 0.013 inches, less than about
0.012 inches, less than about 0.011 inches, less than about 0.010 inches, less than about
25 0.009 inches, less than about 0.008 inches, less than about 0.007 inches, less than about
0.006 inches, less than about 0.005 inches, less than about 0.004 inches, less than about
0.003 inches, less than about 0.002 inches, or is about 0.001 inch.

43. The non-woven soft tissue implant of claim 26, wherein the first and second films
30 have atraumatic edges.

44. The non-woven soft tissue implant of claim 26, wherein the implant is at least about 2.5 cm long along a first side and no more than about 30.0 cm long along a second side.

5 45. The non-woven soft tissue implant of claim 26, further comprising a film that increases tear resistance.

46. The non-woven soft tissue implant of claim 45, wherein the film that increases tear resistance is a porous biocompatible film.

10 47. The non-woven soft tissue implant of claim 26, wherein the implant is flexible along two axes.

15 48. The non-woven soft tissue implant of claim 26, wherein the plurality of cells in the first biocompatible film or the plurality of cells in the second biocompatible film comprises a cell pattern containing a sinusoidal element.

20 49. The non-woven soft tissue implant of claim 26, wherein each of the cells in the plurality of cells in the first biocompatible film or the second biocompatible film has a plurality of undulating elements in the form of a repeating pattern.

50. The non-woven soft tissue implant of claim 49, wherein the undulating elements are in phase.

25 51. The non-woven soft tissue implant of claim 26, wherein the cells in the plurality of cells in the first biocompatible film or the second biocompatible film have a diameter greater than 50 μ and the non-woven soft tissue implant has force displacement characteristics that do not restrict tissue movement when placed in a body.

30 52. The non-woven soft tissue implant of claim 51, wherein the implant can be distended by 25% or more at 16 N/cm.

53. The non-woven soft tissue implant of claim 52, wherein the pattern of the plurality of cells imparts force displacement characteristics that approximates those of the structure being repaired.

5 54. The non-woven soft tissue implant of claim 26, wherein the implant has a surface area ratio less than 1.5.

55. A method for producing a soft tissue implant, the method comprising: (a) extruding a biocompatible polymer into a film and (b) forming a plurality of cells in the film; wherein the
10 method may further comprise the optional step of cleaning the implant.

56. A method for producing a soft tissue implant, the method comprising:
(a) extruding a biocompatible polymer into a film; (b) stretching the film and (c) forming
pores in the film to produce a soft tissue implant; wherein the method may further
15 comprise the optional step of cleaning the implant.

57. A method for producing a soft tissue implant, the method comprising:
(a) extruding a first biocompatible polymer to form a first film; (b) extruding a second
biocompatible polymer to form a second film; (c) attaching the first film to the second
20 film to produce a soft tissue implant; and (d) forming pores in the soft tissue implant;
wherein the method may further comprise the optional step of cleaning the implant.

58. A method for producing a soft tissue implant, the method comprising:
(a) extruding a first biocompatible polymer to form a first film; (b) forming pores or cell
25 patterns in the first film; (c) extruding a second biocompatible polymer to form a second
film; (d) forming pores in the second film and attaching the first film to the second film
to produce a soft tissue implant; wherein the method may further comprise the optional
step of cleaning the implant.